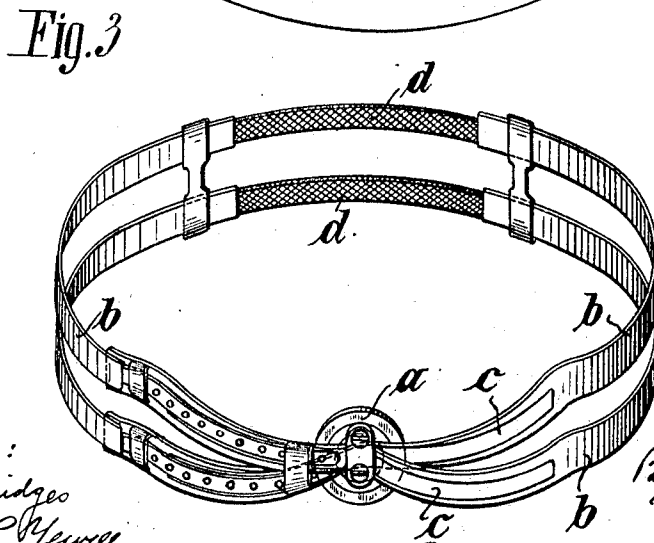
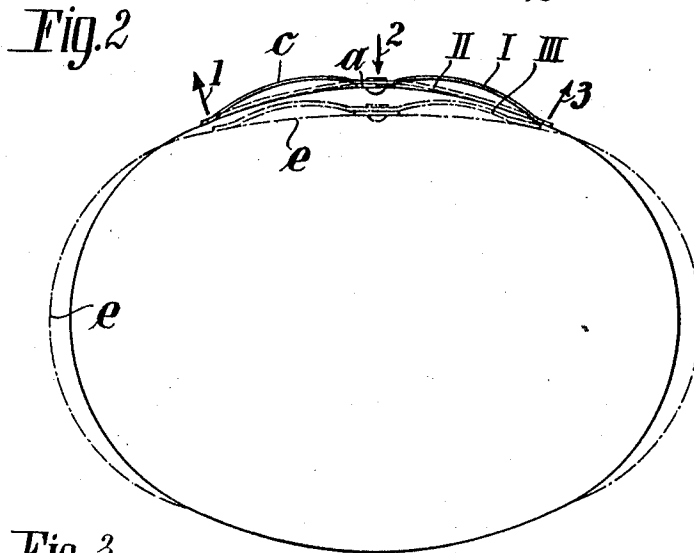
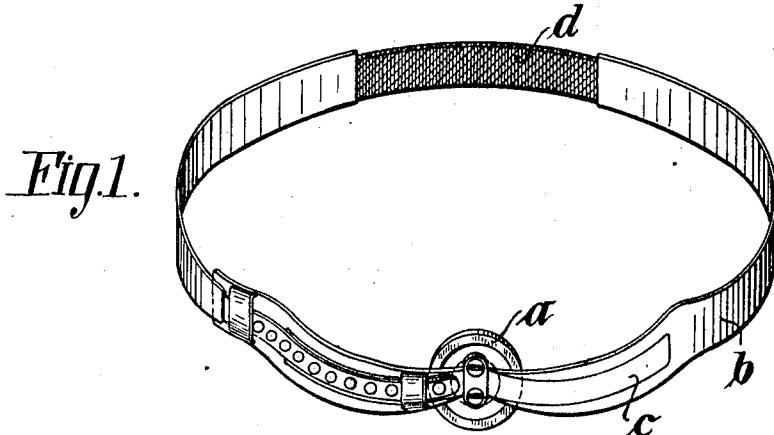


H. LOEWY.
TRUSS FOR UMBILICAL HERNIA.
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1,048,553.

Patented Dec. 31, 1912.



Witness:
B. J. Bridges
Edwin L. Jewell

Inventor:
Hennrich Loewy
B. Davis & Davis
attys

UNITED STATES PATENT OFFICE.

HEINRICH LOEWY, OF BERLIN, GERMANY.

TRUSS FOR UMBILICAL HERNIA.

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To all whom it may concern:

Be it known that I, HEINRICH LOEWY, a subject of the German Emperor, and residing at Berlin, Germany, have invented certain new and useful Improvements in Trusses for Umbilical Hernia, of which the following is a specification.

In the case of umbilical hernia it is difficult to secure the truss on the body in such manner that it constantly remains in place, because its entire front portion rests on the abdominal muscles which are not only soft, but also constantly move, *e. g.* when breathing, walking and so on. In addition to these small changes in shape in the periphery of the abdomen very large changes occur, particularly in corpulent people, when the abdominal muscles are suddenly contracted *e. g.* when breathing very deeply. Such difficult conditions are not met with in inguinal hernia, because in this case the truss is supported by the strong pelvic bones, and only quite unimportant changes in the periphery of the parts of the body surrounded by a truss for inguinal hernia occur. Therefore, a truss for umbilical hernia cannot at once be used for inguinal hernia, and reversely.

A primary object of my invention is to provide an improved truss for umbilical hernia which is secured in position even when the abdominal muscles are suddenly contracted. I attain this end by arranging in the front part of the truss a spring which is bent toward the pad, *i. e.* oppositely to the shape of the body.

Two illustrative embodiments of my invention are represented by way of example in the accompanying drawing, wherein:—

Figure 1 is a perspective view showing the first form of my improved truss, Fig. 2 is a diagram showing the action of the spring, and Fig. 3 is a perspective view of the second form.

Referring firstly to Figs. 1 and 2, *a* designates the pad and *b* the belt consisting of any suitable soft material. A spring *c* is attached in such manner to the belt, *e. g.* by fixing it on or in the same, that its middle portion rests on the pad *a*. The middle of the spring is bent toward the pad and is consequently curved opposite to the curvature of the body, while the ends of the spring may be rectilinear or, as shown, curved corresponding to the curvature of the body. A second elastic member *d*, *e. g.* a

retractile spring or a strip of india-rubber, is arranged exactly opposite the spring *c* in the rear part of the belt.

The truss is put in position and fastened in the usual manner. The pad *a* is placed against the umbilicus, when the truss occupies the position shown in Fig. 1, and then the belt is tightened. By the tightening of the belt the two ends of the spring *c* are pulled toward the body until they fit the curvature of the body, as shown in dotted lines in the position II in Fig. 2. The action of the spring is now such that its ends tend to move away from the body, but the middle portion of the spring is pressed toward the body, as indicated by the arrows 1, 2 and 3 in Fig. 2. This is the normal state. The force indicated by the arrow 2 presses the pad against the umbilicus.

When the abdomen is suddenly contracted, however, it loses its curvature in front, principally expands toward the sides, and accordingly occupies the position represented by the dotted line *e* in Fig. 2. The new action proper of the spring now takes effect. The force represented by the arrow 2, acting in the middle of the spring toward the body, presses the pad and the entire middle portion of the spring toward the body so that the pad always rests against the umbilicus; the spring now approximately assumes its normal shape, *i. e.* that which it had before the truss was put on, and rests only with its ends and its central portion against the body, as shown in position III in Fig. 2. Accordingly, the spring has assumed a position approximately parallel to position I. The forces indicated by the arrows 1 and 3 have disappeared and the ends of the spring abut against the body, so that a powerful pressure is exercised by the pad. As will be understood from position III, in spite of there being a large space between the two curved parts of the spring and the body, so that even the hand could be passed into the same, the truss is firmly positioned because its central portion and the ends of the spring rest against the body.

The action of the spring *c* is aided by the spring *d* or the like in so far as, when the abdomen is contracted and the spring *c* moves from its position II into its position III, the contractile action of this spring *d* or the like causes the ends of the spring *c* in all cases to abut against the body. Obviously, instead of one spring *c* several super-

posed or adjacent springs *c* may be employed.

In the illustrative embodiment according to Fig. 3 intended particularly for children, two belts *b*, two springs *c* and two strips of india-rubber, springs or the like *d* are provided. The springs *c* are here placed cross-wise and can be so turned relatively to one another that they form a larger or smaller angle one with the other, and consequently the distance between the belts *b* can be varied.

I claim:—

In a truss of the class set forth, the combination of a body belt, an elastic retractile connection at the rear, a pad carried by the belt at the front, and a spring plate fas-

tened midway its ends to the belt at a point coincident with the pad and being long enough to approximately surround the front of the abdomen, the parts of this spring at each side of the point of attachment being bowed forwardly so as to spring normally away from the face of the belt and having the free ends bearing constantly and in all positions against the adjacent face of the belt, for the purposes set forth.

In testimony whereof, I affix my signature in the presence of two witnesses.

HEINRICH LOEWY.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."